CLAIMS

1. A cDNA encoding a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof.

2. The cDNA of claim 1 which comprises the nucleotide sequence shown in SEQ ID NO:11.

3. The cDNA of claim 1 which consists of the nucleotide sequence shown in SEQ ID NO:11.

4. The cDNA of claim 1 which comprises the cDNA insert of plasmid pCRII-TMSP3.

5. The cDNA of claim 1 which consists of the cDNA insert of plasmid pCRII-TMSP3.

6. An expression vector comprising a polynucleotide which encodes a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof.

7. The expression vector of claim 6 wherein the polynucleotide comprises the nucleotide sequence shown in SEQ ID NO:11.

8. The expression vector of claim 6 wherein the polynucleotide consists of the nucleotide sequence shown in SEQ ID NO:11.

9. The expression vector of claim 6 wherein the polynucleotide comprises a coding sequence of the cDNA insert of plasmid pCRII-TMSP3.

10. The expression vector of claim 6 wherein the polynucleotide consists of a coding sequence of the cDNA insert of plasmid pCRII-TMSP3.

11. A host cell comprising an expression vector which encodes a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically

active variants thereof.

12. The host cell of claim 11 wherein the polynucleotide comprises the nucleotide sequence shown in SEQ ID NO:11.

13. The host cell of claim 11 wherein the polynucleotide consists of the nucleotide sequence shown in SEQ ID NO:11.

14. The host cell of claim 11 wherein the polynucleotide comprises a nucleotide coding sequence of the cDNA insert of plasmid pCRII-TMSP3.

15. The host cell of claim 11 wherein the polynucleotide consists of a nucleotide coding sequence of the cDNA insert of plasmid pCRII-TMSP3.

16. A purified polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof.

17. The purified polypeptide of claim 16 which consists of the amino acid sequence shown in SEQ ID NO:12.

18. The purified polypeptide of claim 16 which consists of the amino acid sequence encoded by the cDNA insert of plasmid pCRII-TMSP3.

19. A fusion protein comprising a polypeptide consisting of an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof.

20. The fusion protein of claim 19 wherein the polypeptide consists of the amino acid sequence shown in SEQ ID NO:12.

21. The fusion protein of claim 19 wherein the polypeptide consists of the amino acid sequence encoded by the cDNA insert of plasmid pCRII-TMSP3.

22. A method of producing a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof, comprising the steps of:

culturing a host cell comprising an expression vector that encodes the polypeptide under conditions whereby the polypeptide is expressed; and

isolating the polypeptide.

23. The method of claim 22 wherein the expression vector comprises the nucleotide sequence shown in SEQ ID NO:11.

24. The method of claim 22 wherein the expression vector comprises a coding sequence of the cDNA insert of plasmid pCRII-TMSP3.

25. A method of detecting a coding sequence for a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof, comprising the steps of:

hybridizing a polynucleotide comprising 11 contiguous nucleotides selected from the group consisting of (a) the complement of the nucleotide sequence shown in SEQ ID NO:11, (b) the complement of the coding sequence of the cDNA insert of plasmid pCRII-TMSP3, (c) a polynucleotide that hybridizes under stringent conditions to (a) or (b), (d) a polynucleotide having a nucleic acid sequence that deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code, and (e) a polynucleotide that represents a fragment, derivative, or allelic variation of a nucleic acid sequence specified in (a) to (d) to nucleic acid material of a biological sample to form a hybridization complex; and

detecting the hybridization complex.

26. The method of claim 25 further comprising the step of amplifying the nucleic acid material before the step of hybridizing.

27. A kit for detecting a coding sequence for a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof, comprising:

a polynucleotide comprising 11 contiguous nucleotides selected from the group consisting of (a) the complement of the nucleotide sequence shown in SEQ ID NO:11, (b) the

complement of the coding sequence of the cDNA insert of plasmid pCRII-TMSP3 to nucleic acid material of a biological sample to form a hybridization complex, (c) a polynucleotide that hybridizes under stringent conditions to (a) or (b), (d) a polynucleotide having a nucleic acid sequence that deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code, and (e) a polynucleotide that represents a fragment, derivative, or allelic variation of a nucleic acid sequence specified in (a) to (d); and

instructions for the method of claim 25.

28. A method of detecting a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof, comprising the steps of:

contacting a biological sample with a reagent that specifically binds to the polypeptide to form a reagent-polypeptide complex; and

detecting the reagent-polypeptide complex.

29. The method of claim 28 wherein the reagent is an antibody.

30. A kit for detecting a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof, comprising:

an antibody which specifically binds to the polypeptide; and

instructions for the method of claim 28.

31. A method of screening for agents that can regulate an activity of a human transmembrane serine protease, comprising the steps of:

contacting a test compound with a polypeptide comprising an amino acid sequence selected from the group consisting of: (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof; and

detecting binding of the test compound to the polypeptide, wherein a test compound that binds to the polypeptide is identified as a potential agent for regulating the activity of the human transmembrane serine protease.

32. The method of claim 31 wherein the step of contacting is in a cell.

33. The method of claim 32 wherein the cell is *in vitro*.

34. The method of claim 32 wherein the cell is *in vivo*.

35. The method of claim 31 wherein the step of contacting is in a cell-free system.

36. The method of claim 31 wherein the polypeptide comprises a detectable label.

37. The method of claim 31 wherein the test compound comprises a detectable label.

38. The method of claim 31 wherein the polypeptide is bound to a solid support.

39. The method of claim 31 wherein the test compound is bound to a solid support.

40. A method of screening for therapeutic agents that can regulate an enzymatic activity of a human transmembrane serine protease, comprising the steps of:

contacting a test compound with a polypeptide comprising an amino acid sequence selected from the group consisting of: (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof; and

detecting the enzymatic activity of the polypeptide, wherein a test compound that increases the enzymatic activity of the polypeptide is identified as a potential therapeutic agent for increasing the enzymatic activity of the human transmembrane serine protease, and wherein a test compound that decreases the enzymatic activity of the polypeptide is identified as a potential therapeutic agent for decreasing the enzymatic activity of the human transmembrane serine protease.

41. The method of claim 40 wherein the step of contacting is in a cell.

42. The method of claim 41 wherein the cell is *in vitro*.

43. The method of claim 41 wherein the cell is *in vivo*.

44. The method of claim 40 wherein the step of contacting is in a cell-free system.

45. A method of screening for therapeutic agents that can regulate an activity of a human transmembrane serine protease, comprising the steps of:

contacting a test compound with a product encoded by a polynucleotide comprising a nucleotide sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically

active variants thereof; and

detecting binding of the test compound to the product, wherein a test compound that binds to the product is identified as a potential therapeutic agent for regulating the activity of the human transmembrane serine protease.

46. The method of claim 45 wherein the product is a polypeptide.

47. The method of claim 45 wherein the product is an RNA.

48. A method of reducing an activity of a human transmembrane serine protease, comprising the step of:

contacting a cell comprising the human transmembrane serine protease with a reagent that specifically binds to a product encoded by a polynucleotide comprising a nucleotide sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof, whereby the activity of the human transmembrane serine protease is reduced.

49. The method of claim 48 wherein the product is a polypeptide.

50. The method of claim 49 wherein the reagent is an antibody.

51. The method of claim 48 wherein the product is an RNA.

52. The method of claim 51 wherein the reagent is an antisense oligonucleotide.

53. The method of claim 51 wherein the reagent is a ribozyme.

54. The method of claim 48 wherein the cell is *in vitro*.

55. The method of claim 48 wherein the cell is *in vivo*.

56. A pharmaceutical composition, comprising:

a reagent that specifically binds to a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof; and

a pharmaceutically acceptable carrier.

57. The pharmaceutical composition of claim 56 wherein the reagent is an antibody.

58. A pharmaceutical composition, comprising:

a reagent that specifically binds to a product of a polynucleotide comprising a

coding sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof; and

a pharmaceutically acceptable carrier.

59. The pharmaceutical composition of claim 58 wherein the reagent is a ribozyme.

60. The pharmaceutical composition of claim 58 wherein the reagent is an antisense oligonucleotide.

61. The pharmaceutical composition of claim 58 wherein the reagent is an antibody.

62. A pharmaceutical composition, comprising:

an expression vector encoding a polypeptide comprising an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof; and

a pharmaceutically acceptable carrier.

63. The pharmaceutical composition of claim 62 wherein the expression vector comprises the nucleotide sequence shown in SEQ ID NO:11.

64. The pharmaceutical composition of claim 62 wherein the expression vector comprises the cDNA of plasmid pCRII-TMSP3.

65. A method of treating a disorder selected from the group consisting of chronic obstructive pulmonary disease, cancer, metastasis of malignant cells, tumor angiogenesis, inflammation, atherosclerosis, neurodegenerative diseases, and pathogenic infections, comprising the step of:

administering to a patient in need thereof a therapeutically effective dose of a reagent that inhibits a function of a human transmembrane serine protease, wherein the human transmembrane serine protease comprises an amino acid sequence selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof, whereby symptoms of the disorder are ameliorated.

66. The method of claim 65 wherein the reagent is identified by the method of claim 19.

67. The method of claim 65 wherein the reagent is identified by the method of claim 28.

68. The method of claim 65 wherein the reagent is identified by the method of claim 35.

69. An isolated polynucleotide selected from the group consisting of: (a) a polynucleotide encoding a protein that comprises the amino acid sequence of SEQ ID NO:12, (b) a polynucleotide comprising the sequence of SEQ ID NO:11, (c) a polynucleotide comprising a coding sequence of a cDNA contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), (d) a polynucleotide encoding a protein that comprises the amino acid sequence encoded by the cDNA of plasmid pCRII-TMSP3, (e) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) - (d); (e) a polynucleotide having a nucleic acid sequence that deviates from the nucleic acid sequences specified in (a) - (d) due to the degeneration of the genetic code, and (f) a polynucleotide that represents a fragment, derivative, or allelic variation of a nucleic acid sequence specified in (a) - (e).

70. An expression vector comprising the polynucleotide of claim 69.

71. A host cell comprising the expression vector of claim 70.

72. A preparation of antibodies that specifically bind to a polypeptide selected from the group consisting of (a) the amino acid sequence shown in SEQ ID NO:12, (b) the amino acid sequence encoded by a cDNA insert contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), and (c) biologically active variants thereof.

73. An antisense oligonucleotide that hybridizes to a polynucleotide selected from the group consisting of (a) a polynucleotide encoding a protein that comprises the amino acid sequence of SEQ ID NO:12, (b) a polynucleotide comprising the sequence of SEQ ID NO:11, (c) a polynucleotide comprising a coding sequence of a cDNA contained within plasmid pCRII-TMSP3 (ATCC Accession No. _____), (d) a polynucleotide encoding a protein that comprises the amino acid sequence encoded by the cDNA of plasmid pCRII-TMSP3, (e) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) - (d); (e) a polynucleotide having a nucleic acid sequence that deviates from the nucleic acid sequences

specified in (a) - (d) due to the degeneration of the genetic code, and (f) a polynucleotide that represents a fragment, derivative, or allelic variation of a nucleic acid sequence specified in (a) - (e).